

CLAIMS

What is claimed is:

1. Method for data transmission in a telephone data transmission network, from a server to at least one network terminal, characterised by the fact that:

- 5 - the server acquires state information for the network from traffic transmission devices on the network, the network determining state information specific to the telephone activity of the terminal and providing it as network state information, and
- 10 - the server compares network state information with at least one predetermined criterion for the state of the network, to delay the transmission of data to the terminal as long as the state of the network does not satisfy at least one state criterion.

2. Method according to claim 1, in which the network determines at least one of the following types of information, as information specific to terminal:

- 15 - traffic load state at a switching centre to which the terminal is attached,
- accessibility state of the terminal,
- busy state of the terminal,
- up flow from the terminal to the switching centre,
- 20 - down flow from the switching centre to the terminal,
- service quality allocated to the terminal.

3. Method according to claim 1, in which the network monitors changes to state information and automatically sends a state change notification to the server to request refreshment of previously acquired state information.

4. Method according to claim 3, in which the network notifies the need for a transmission to refresh state information that has changed.

5. Method according to claim 1, in which the server acquires state information through a state information manager.

5 6. Method according to claim 5, in which the manager receives and stores state information from the network.

7. Method according to claim 1, in which the network acquires at least some state information from network switching centres.

8. Method according to claim 7, in which each switching centre on the
10 network stores at least one of the following types of state information locally and sends it to the server, for each terminal attached to the centre:

- terminal unique identifier (IMSI, MSISDN),
- terminal accessibility state,
- terminal location,
- 15 - time since the last data transfer,
- number of PDP contexts,
- allocated address,
- allocated quality level,
- up traffic,
- 20 - down traffic.

9. Method according to claim 8, in which the centres monitor the current state of state information to compare it with the previous state information kept in local storage, so that when a state change event occurs, the locally stored information can be updated and current state information can be sent to the
25 server.

10. Method according to claim 9, in which the centres monitor the appearance of at least one of the following types of events:

- change of the accessibility state of the terminal,
- attachment to another centre,
- 5 - change the routing area,
- start, interrupt or end a data transfer,
- renegotiation of a quality level,
- activate or deactivate a link context.

11. Method according to claim 8, in which information stored locally in a
10 centre is transmitted to the server on request.

12. Method according to claim 1, in which the network acquires at least part of the state information through traffic monitoring sensors positioned on the communication feeders of the network.

13. Method according to claim 12, in which the sensors analyse signal
15 fields of messages passing on communication feeders to extract at least some state information about the terminal.

14. Method according to claim 13, in which the sensors analyse at least one of the following signals:

- request to create a link context,
- 20 - request to update a link context,
- request to delete a link context,
- request to notify PDU,
- request to send network routing information,
- request to note that a terminal can once again be reached,
- 25 - identification request, and
- request for SGSN context.

15. Method according to claim 13, in which the various messages are sent using various protocols, and the sensors identify which protocol is used.

16. Method according to claim 5, in which the manager requests the required state information from the network.

5 17. Method according to claim 16, in which the manager sends an order in the network that information necessary to refresh the previously received state information should be returned.

18. Method according to claim 16, in which the manager monitors if state information is available in the network and orders that the information should be
10 refreshed if some state information is missing.

19. Method according to claim 17, in which refreshment is not ordered until the manager has received a state information request from the server.

20. Method according to claim 19, in which the manager determines a storage duration for the information available to him and does not order
15 refreshment unless the storage duration exceeds and expiration threshold.

21. Method according to claim 16, in which refreshment of the state information is ordered by sending activation stimuli to the terminal, through the network.

22. Method according to claim 21, in which the stimuli are sent to the
20 terminal to activate it so that a context for a new data link can be set up in the network, and to detect the link context to refresh network state information specific to the terminal.

23. Method according to claim 22, in which the stimuli activate an application on the terminal.

24. Method according to claim 23, in which the stimuli activate a SIM Toolkit application.

25. Method according to claim 23, in which the application deactivation stimuli are sent later.

5 26. Method according to claim 22, in which the stimuli firstly reach a switching centre of the network and order it to transform them into a activation message sent from the terminal, notifying it that it should call a centre to recover data on this centre.

10 27. Method according to claim 1, in which the server is functionally integrated into a semaphore signalling network managing the telephone network.

28. Method according to claim 1, used in a radio network.

15 29. State information manager for a telephone network to use the process according to claim 1, comprising management means designed to receive state information from the network and to forward it to information data servers.

30. Manager according to claim 29, comprising means of making queries about the network state.

31. Manager according to claim 30, comprising activation means designed to send stimuli for the refreshment of state information in the network.

20 32. Manager according to claim 29, comprising means of combining network state information, to provide network state summary data.

33. Manager according to claim 29, comprising means of integrating network state information with respect to time, to supply summary data about the state of the network.